Buy U. S. War Savings Bonds and Stamps

GEOGRAPHIC SCHOOL BULLETINS

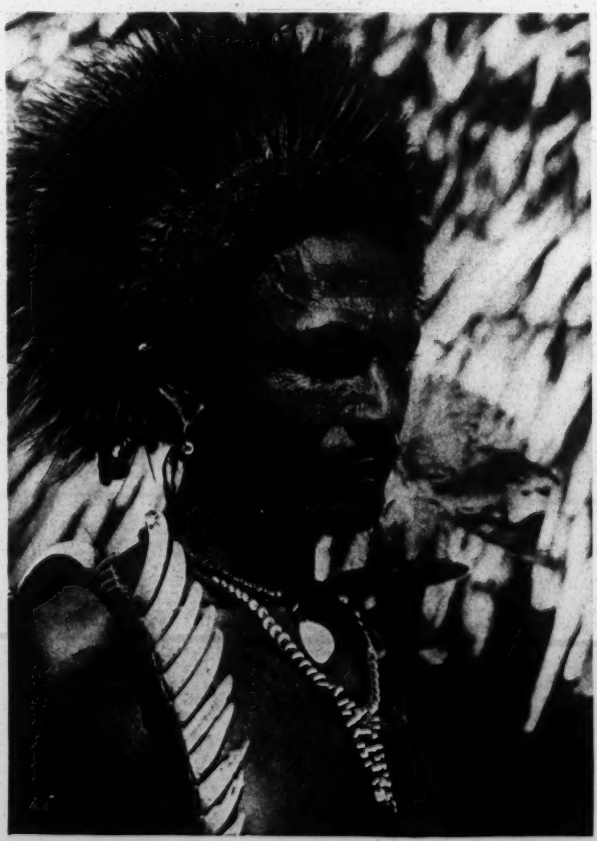
Published Weekly by

THE NATIONAL GEOGRAPHIC SOCIETY

(The National Geographic Society is a scientific and educational Society, wholly altruistic, incorporated as a non-commercial institution for the increase of geographic knowledge and its popular diffusion. General Headquarters, Washington, D. C.)

March 27, 1944. Vol. XXII. No. 36.

1. Where Are the Yanks? 6. New Guinea
2. Nazi Aircraft Centers Bombed: Gotha, Brunswick, Frankfurt
3. Argentina, Meat and Grain Land, Yields Metals Too
4. Potato, Cool Climate Crop, First Found near Equator
5. Canada Aids Allies as Arsenal and Larder



Frank Hurley

JUNK JEWELRY AND THE "UP" HAIR-DO TICKLE MASCULINE VANITY IN NEW GUINEA

This well-dressed dandy of the village of Wanigella, on New Guinea's northeast coast not far from the Huon Gulf, follows the local fashion of making earrings and necklaces of shells of various sizes, dog teeth, and pig tusks strung on palm fiber. Instead of flowers, he wears a thicket of stiff palm fibers fastened in his coconut-oiled locks. He must prop his mop up on a wooden pillow to sleep. He and his tribesmen are known as the Orokaiva people because of their practice of greeting visitors with welcoming shouts of "Orokaiva." The aborigines of New Guinea, the Papuans, have been driven inland by invasion of Melanesian tribes who settled on the coast. These primitive peoples have been overwhelmed by modern warfare at its fiercest as Yanks and Aussies battle the Japanese on the New Guinea front (Bulletin No. 1).

UMI

GEOGRAPHIC SCHOOL BULLETIN

HOW TEACHERS MAY OBTAIN THE BULLETINS

The Geographic School Bulletins are published weekly throughout the school year (thirty issues) and will be mailed to teachers in the United States and its possessions for one year upon receipt of 25 cents (stamps or money order); in Canada, 50 cents. Originally entered as second-class matter January 27, 1922; re-entered as of April 27, 1943, Post Office, Washington, D. C., under Act of March 3, 1879. **Copyright, 1944, by National Geographic Society, Washington, D. C. International copyright secured. All rights reserved. Quedan reservados todos los derechos.**

Where Are the Yanks? 6. New Guinea

(This is the sixth in a series of articles about the regions where American service men and women are stationed.)

NEW GUINEA—wild, wet, rugged, vast, tropical. In 432 years between the time when Europeans first sighted it and 1942, when war tides cast Americans upon its shores, the white man had barely touched its interior. Only near the earth's poles are there such large areas so little explored.

Development of New Guinea by planters and traders began only sixty years ago. The Dutch, the British, and the Germans were the pioneers.

Since World War I, British and Australians in the eastern half and the Dutch in the west have drawn increasing wealth in gold and coconut products. With few exceptions, their New Guinea settlements are on the coast. None is more than a large village.

Even the Yanks, who in two years of fighting there have teamed with Aussies to throw the Japs into reverse, have scratched only the back and tail of the big island.

Turkey-Shaped Silhouette Dips Head Beneath Equator

Back and tail? Yes. New Guinea is shaped like a turkey (map, next page). It perches atop Cape York, northernmost tip of Australia, on reef-pimpled legs covered by the shallow waters of 100-mile Torres Strait.

At the western tip, Vogelkop ("bird head" in Dutch) is nearly severed from the peninsula-wattled neck. It rises barely beyond the latitude of the shoulder, as if ducking beneath the Equator. Far to the southeast the bird's tail sweeps to a feathery double tip that makes historic Milne Bay. New Britain is a plume that flutters free from the Huon Peninsula wing.

Second only to Greenland among island areas of the world, New Guinea matches the present area of the thirteen original States of the United States. It is 1,500 miles long, east to west, and 450 miles wide at the middle. Yanks on the Huon bulge, nearest to New Britain, are 6,500 air miles southwest of San Francisco.

Japs, reaching for Australia in mid-1942, seized the settlements that dot the long back of the New Guinea bird—Hollandia and Sarmi from the Dutch; Buna, Gona, Salamaua, Lae, Finschhafen, Madang, from the British and the Australians. Far west, on the head and neck, they established bases at Manokwari, Sorong, Fakfak, Kaimana.

Nature Helps Defeat Armies

Gold had built airports at some of these villages. From either Salamaua or Lae, for example, British prospectors who had once struggled at a mile-a-day pace to reach Wau, 32 miles inland, could cover the distance by air in less than 32 minutes. From such airfields the Japs pounded Port Moresby, key British stronghold on New Guinea's southeast coast, and Darwin and Cape York, northern bastions of Australia. But not for long. Yanks and Aussies pushed up New Guinea's northeast coast and on to New Britain.

At Milne Bay, in the Markham Valley, in the Owen Stanley Range the Japs learned by bitter experience a prime fact about New Guinea: to gain your ends there, you must have nature on your side.

Towering mountain ranges, with snow-capped summits in the west higher than any peak in the United States, extend through the length of the island. Lower ranges parallel them, creating waves of choppy peaks. Thick forests matted with creeping and climbing vines cover the slopes. Nature steams in the tropical sun between torrential rains.

Here and there in the mountains are expanses bared of forests by fire, but covered with tall, razor-sharp grass and gashed by gorges which rainstorms fill with torrents.

Many rivers, most of them unmapped, flow down the mountains. Largest are the Fly on the south and the Sepik on the north. Bordering the coasts, especially in the south, are great marshlands infested with mosquitoes, crocodiles, snakes, and leeches.

With mighty rains nature flooded out the Japs' earliest attempt to cross New Guinea up the Markham Valley and forced them back to the shores of Huon Gulf. Nature strangled the supply line in the Jap attempt to cross the sea of forested mountains from Kokoda to Port Moresby, stalled that campaign thirty miles from its goal.

De Saavedra in 1528 named this island "Isle of Gold" to spur other explorers. But gold was not found by early prospectors. Since the black, woolly-haired Melanesian natives seemed

UMI

Dr. E. W. Brandes

NEW GUINEA'S SHORTEST PYGMIES LIKE THE TALLEST HOUSES

For pygmy tribes of New Guinea's interior, a man's home is his castle in the air. The little folk plan that in case of danger they will go climb a tree. The ficus tree, with numerous aerial roots almost as thick as the trunk, offers a many-stilt foundation for a birdhouse home. The pygmy chops off the top of the tree with a stone ax, supplements the tree's trunk and roots with sturdy poles, and builds a neat, lightweight house of bamboo, palm leaves, and reed thatch. On the aerial platform which serves as a cool, shady "basement" to this tree house stand two boys, not easily seen by an observer on the ground. Climbing a notched pole, the pygmy pops up through the floor to enter one of the most unusual types of home that Yanks will see in New Guinea (Bulletin No. 1).

GEOGRAPHIC SCHOOL BULLETIN

Published Weekly by

THE NATIONAL GEOGRAPHIC SOCIETY

(Founded in 1888 for the Increase and Diffusion of Geographic Knowledge)

General Headquarters, Washington, D. C.

Nazi Aircraft Centers Bombed

GOTHA MADE BOMBING PLANES IN 1916

Allied bombing of Gotha reminded the world that in World War I this city gave its name to a large German airplane. The Gotha was a twin-engined biplane. It was used in many daylight bombing raids over England in 1916-17.

Gotha's attraction for Allied bombers was its many factories making airplanes (chiefly Messerschmitts), machinery, and precision instruments.

The city is on the Leina Canal in central Germany, midway on the railroad connecting the bombed industrial cities of Kassel and Leipzig. Its prewar population was nearly 50,000.

At the end of the 18th century Justus Perthes founded the geographical institute that made Gotha a European center of geographic science. The city published the *Almanach de Gotha* for 120 years, giving world statistics on commerce, population, and finance. A French edition was also issued.

Gotha, with many insurance companies, was the Hartford of Germany. The first company was organized in 1821 for fire insurance. In 1827 a life insurance company was formed. Gotha opened the first commercial school in Germany.

BRUNSWICK PLAYED BIG ROLE IN WAR INDUSTRY

Airplane plants and automobile works made Brunswick (Braunschweig), in north-central Germany, a target for Allied bombers. Brunswick also manufactured chemicals, machinery, boilers, jute cordage, beer, and chocolate; it canned food and printed books.

Situated in the fertile valley of the Oker River, 125 miles west of Berlin, Brunswick was founded in the 9th century by Bruno, son of the Duke of Saxony. It was one of the foremost cities of the Hanseatic League in the 13th century. Brunswick's prewar population was slightly over 200,000.

Brunswick played a part in American history when her rulers hired out more than 4,000 men to fight with the British and the Hessians in the Revolution.

Perhaps most famous of Brunswickers is Till Eulenspiegel, legendary mischievous character who supposedly lived there in the 14th century. Cakes named for him are still sold in a bakeshop where he is supposed to have worked.

FRANKFURT FACTORIES GET ALLIED BOMBS

One of Germany's most important industrial, commercial, and railroad centers, Frankfurt has felt the impact of war bombs for nearly four years. Its airplane plants have given it a prominent place on the current Allied bombing program to wipe out Nazi airplane production. Oil depots, chemical factories, blast furnaces, explosives factories contribute to its importance.

Frankfurt lies on the Main River about 24 miles from its confluence with the Rhine at Mainz. In addition to good water transportation facilities, it has railroad connections with the important centers of Europe. Before the war it had a population of 546,649.

In addition to Frankfurt's war industries, there were factories producing oilcloth and carpets, cotton, silk and woolen fabrics, chemicals, electrical supplies, and machinery.

One of Germany's oldest cities, it was called the "ford of the Franks" when

UMI

more like the Negroes of Africa's Guinea coast than like the Polynesians of other Pacific isles, the giant island's name soon became New Guinea.

A Million Natives, Many Different Tribes

Coast tribesmen are peaceful, Christian, generally tall and well built (illustration, cover). They live in thatch houses built on piles over water or in trees. They fish, or work in coconut groves, on sisal and rubber plantations, and in gold mines.

Inland are wild tribes varying greatly in color, size, and customs (illustration, inside cover). Sorcery and superstition are common to all. Scars for adornment, shell and tooth necklaces, feathered headdresses, bones through pierced noses are popular. Headhunting and cannibalism are probably not yet extinct.

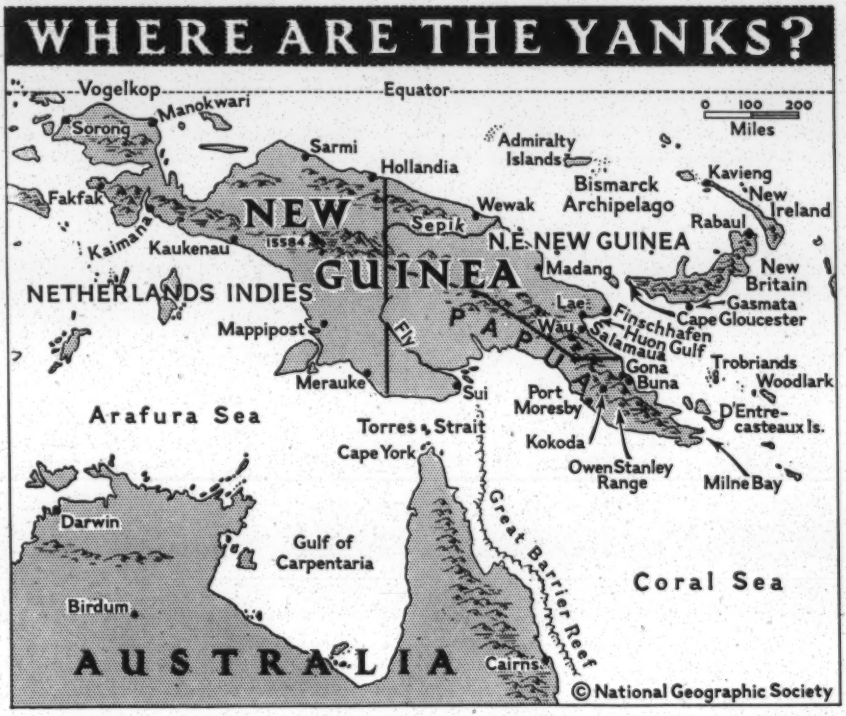
Natives living on the island are estimated to number approximately one million. White settlers, numbering about 6,000 before the war, were almost all in the eastern half.

Beautiful birds of paradise, gay butterflies, a profusion of orchids add color to the lush, tropical green that is everywhere. A wild pig is New Guinea's largest mammal. The wallaby, bandicoot, echidna, ringtailed opossum, cassowary, and fruit-eating bat remind Aussies that Australia is near.

NOTE: New Guinea is shown on the National Geographic Society's Map of the Pacific Ocean and the Bay of Bengal.

For additional information, see "Treasure Islands of Australasia," in the *National Geographic Magazine* for June, 1942*; "Unknown New Guinea," March, 1941; and "Into Primeval Papua by Seaplane," September, 1929*. (*Issues marked by an asterisk are included in a special list of Magazines available to teachers at 10¢ each in groups of ten.*)

Bulletin No. 1, March 27, 1944.



JAPS TRIED TO GOBBLE ALL THREE PORTIONS OF THE NEW GUINEA TURKEY

Europeans carved the turkey-shaped island into three portions in the 19th century. First the Dutch annexed to the Netherlands Indies the rugged western half, where snow-capped mountains in the Snow Range defy the Equator at heights culminating at 15,584 feet (higher than the highest in the continental United States). Later Germany annexed the northeast part in 1884 and called it Kaiser-Wilhelmsland. The British in the same year proclaimed a protectorate over the southeastern section, across the Torres Strait from Australia. In 1919 the League of Nations mandated to Australia the German part, now known as North-East New Guinea.

GEOGRAPHIC SCHOOL BULLETIN

Published Weekly by

THE NATIONAL GEOGRAPHIC SOCIETY

(Founded in 1888 for the Increase and Diffusion of Geographic Knowledge)

General Headquarters, Washington, D. C.

Argentina, Meat and Grain Land, Yields Metals Too

THE importance of the question of Argentina's friend-or-foe relationship with the United Nations is founded largely on the South American nation's vast food resources of meat, wheat, and corn. But it is bolstered by metals.

The long-neutral country of southern South America has become a significant supplier of several metals valuable to the United Nations war effort. Although available quantities of these materials are relatively small, they have special value because of war-created demands and the loss of normal supplies from regions now enemy-controlled.

Metals That Fight or Work

Argentina's most important wartime metal is tungsten, vital in hardening steel for high-speed cutting tools. For direct battle use, tungsten serves in armor-piercing projectiles, in armor plate itself, in erosion-resisting gun linings. It is used in telephone and radio communications; in X-ray equipment for medical treatment and pictures. Tungsten also plays its part in home use in filaments for electric lights (illustration, next page) and radio tubes; in salts for the chemical, painting, and tanning industries; in varied articles from watches to pianos.

Nearly three-quarters of the world's tungsten in peacetime came from Asia, chiefly China. Latin America ranked next, with about ten per cent of the output, in which Argentina followed Bolivia as a source. Today, Argentina has a contract to send all its tungsten to the United States. According to Argentine figures, nearly $2,800,000 worth of wolfram, the main tungsten ore, was produced in 1942.

Beryllium is another war aid from Argentine mines. Until recently Argentina and Brazil produced more beryl—the ore from which beryllium is obtained—than all the rest of the world. South America before the war supplied much of Germany's imports of beryllium, with which experiments had long been carried on. Now available supplies go to the United Nations. Argentina was the chief source of United States imports before Pearl Harbor.

Source of "Metal That Never Tires"

As a substitute for war-scarce tin, beryllium forms an alloy with copper that can take the place of bronze. Beryllium alloys are hard and extremely strong, suitable for tools and dies. Because it gives off no sparks, it makes good safety tools and surfaces for workers in factories handling explosives. Outstanding is beryllium's use in aircraft instruments. A combination of two per cent beryllium and 98 per cent copper in precision springs for instruments has the virtue of not weakening, no matter how often the springs may be stretched. Hence beryllium's reputation as "the metal that never tires."

Less substantial in quantity and value, but of considerable importance in wartime, is Argentina's antimony. Without this strategic metal, mechanized armies would stop in their tracks and submarines would never dive, for antimony—in combination with lead—is used in storage batteries that start the motors of land vehicles and supply the electric current for the under-water craft.

It is found in bullet cores and shrapnel balls; in priming mixtures that set off bombs and big and little guns. In industry, antimony serves, with lead, in type metal for printing; in alloys for ball bearings and bearing linings; in medicine; in paints; in sheathing for telephone and telegraph cables; and for high-tension lines.

UMI

Charlemagne held an assembly there in the 8th century. In 1152 Frederick Barbarossa was chosen king in the city hall, the Römer, which thereafter was the election place of German kings.

Frankfurt became a free city in 1245. Unhampered by local princes, paying tribute to the emperor alone, like other free cities Frankfurt grew rapidly. It became a great center of commerce, industry, and wealth.

European Picture Service

FRANKFURT'S SPIRES WERE BOMBERS' LANDMARKS

In the foreground, corbie-stepped gables rise to the roof ridge of the towered New Rathaus, a 20th-century addition to the ancient town hall, the Römer. The 310-foot spire (finished in 1869) marks Frankfurt's Gothic cathedral. Beyond (left) rise smokestacks of factories.

For centuries there appeared no change in its cobbled streets, so narrow in places that the overhanging stories of houses and shops on each side almost met overhead. In one of the squares is the Gothic cathedral (illustration, left) where the kings chosen in the Römer were crowned.

Goethe's Birthplace

Among the many ancient buildings is the 16th century house where the poet Goethe was born in 1749.

Adjoining the house is a museum containing portraits and relics of Goethe and his family.

Frankfurt has been a financial center since the days of Meyer Anselm Rothschild, founder of the famous banking house, who was born there in 1743. From there he sent out his sons to establish branches of the House of Rothschild in Paris, London, Vienna, and Naples. His eldest son, who succeeded him as head of the Frankfurt business, became a member of the royal Prussian privy council of commerce and, in 1820, court banker.

GEOGRAPHIC SCHOOL BULLETIN

Published Weekly by

THE NATIONAL GEOGRAPHIC SOCIETY

(Founded in 1888 for the Increase and Diffusion of Geographic Knowledge)

General Headquarters, Washington, D. C.

Potato, Cool Climate Crop, First Found near Equator

REMEMBER when last year's shortage of Irish potatoes made a pound of spuds as precious as a gallon of gasoline? Everybody planted potatoes then, and now a surplus has developed. So the humble tuber is winning more front-page space by taking a job in a war plant and helping in the production of industrial alcohol.

Doubly misnamed—like the guinea pig, which is neither pig nor from Guinea—the Irish potato is neither potato nor from Ireland. Now it thrives in cool climates, skirting the northern limit of agriculture. But it was first discovered growing almost on the Equator, in Peru. Its Spanish discoverers called it "papas." The "batata" was what is now known as the sweet potato, which is thus the original bearer of the potato name.

Potatoes, dehydrated and compressed to one-fourth volume, now are an important part of Lend-Lease and Army food shipments to all parts of the globe. Four centuries ago likewise they were sun-dried and trampled to one-fifth their normal bulk and stored for rainy-day use by Inca Indians of Peru.

Irish Only by Adoption

The white potato's birthplace at the Equator marked no exception to its demand for cool climate. It was found high in the Andes Mountains, where the cold was too intense for wheat and Indian corn to grow (illustration, next page). It was taken to Europe by the Spaniards about 1580.

For nearly a century in Europe the potato was regarded as a curious cousin of belladonna and other narcotic and poisonous nightshades. Spreading to Britain and Ireland, it thrived in the latter's climate and soil. By 1680 its first important conquest had been gained, when Irish farmers made it a food staple. Gradually it replaced grains in Ireland, to such a degree that a potato crop failure in 1845 brought famine and caused the first great wave of Irish migration to the United States.

After its Irish success the potato spread rapidly throughout Europe and North America. Louis XVI of France and Frederick the Great of Prussia promoted its production. At Montdidier, French battle site of 1918, a monument honors Antoine Augustin Parmentier, who introduced the *pomme de terre* to French masses in charity soup kitchens. His name adorns potato soup on French menus.

How the Potato May Prolong the War

Russia, Germany, Poland, and their neighbors surrounding the Baltic Sea led in bringing the potato to its present popularity on the world's dining tables. Although the United States raises 400 million bushels a year—three bushels per capita—Europe normally grows nine-tenths of the world's six-billion-bushel crop, Estonia, for example, produces nearly a ton per capita. Europe's potatoes serve widely in industry, in addition to supplying an estimated one-fourth of the continent's food for humans and some livestock feed as well.

Necessity has mothered potato uses in German industry that are undeveloped in United Nations countries. The potato was credited with having enabled the Germans to remain many extra months in World War I, when they pioneered in dehydrating the tuber and other foods. With added industrial duties, it is hardly of less importance to the Nazis in 1944. Starch, alcohol, flour, and glucose from

UMI

Before the Japanese invasion, China was the world's big antimony producer. By 1939, Latin America was accounting for more than half the world's supply, with Bolivia and Mexico the leading nations, followed by Peru and Argentina.

Argentina is also the source for a small but significant supply of two less familiar war metals—columbium and tantalum. These melodiously named elements are found together in varying proportions. Tantalum is used in radar and radio tubes; columbium alloys improve steel quality. Of special value is a columbium mixture that can take the strain of sharp temperature changes and contrasts. Exhaust pipes of aircraft, for instance, must suffer such a strain, from hot fumes inside and cold air of high altitudes outside.

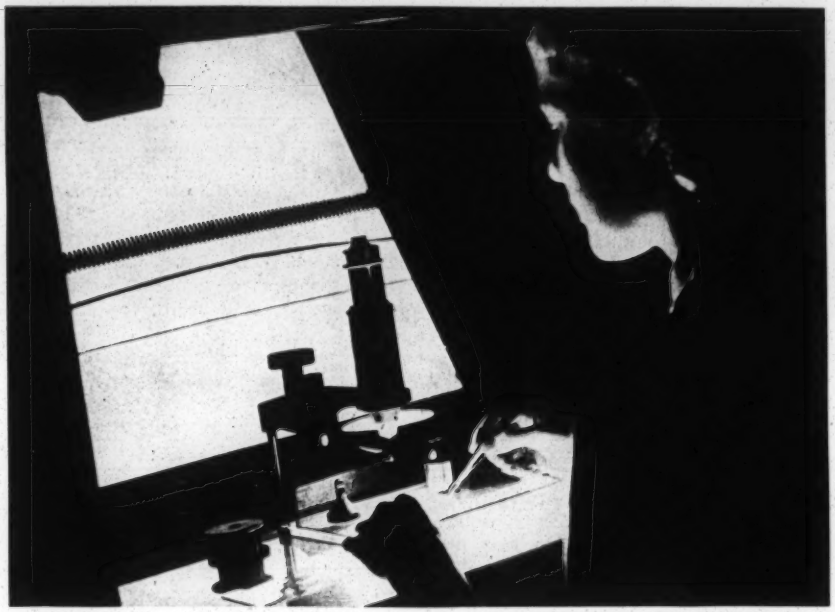
In terms of general production and value, lead is the chief metallic ore of Argentina. Next in rank are tungsten, silver, zinc, and tin. This nation has the only tin smelter in Latin America, although its own supplies are small compared with the output of neighboring Bolivia.

NOTE: Argentina may be studied on the Society's Map of South America.

For additional information, see "Metal Sinews of Strength," in the *National Geographic Magazine* for April, 1942; "Buenos Aires: Queen of the River of Silver," November, 1939*; and "Life on the Argentine Pampa," October, 1933.

See also these GEOGRAPHIC SCHOOL BULLETINS: "Rich, Productive Argentina Last to Break Axis Ties," February 14, 1944; and "Argentina, Land of Peak and Pampa," December 7, 1942.

Bulletin No. 3, March 27, 1944.



General Electric Co.

NOW YOU SEE IT; LATER YOU SEE BY IT

Like liberty, tungsten can enlighten the world, for it is the metal best suited for the torchbearer role of electric light bulb filaments. It can stand more heat without melting than any other metal; therefore it can last longer in a bulb, glowing so white-hot that it radiates light. For filaments, tungsten is first processed into wire and twisted into a coil so fine that it must be magnified 80 times for the inspector to examine it, silhouetted on a screen (center of screen). It is little heavier than a hair (projected beneath on screen for comparison). Then the coil is coiled again (top), to offer maximum resistance to the electric current and produce a brilliant light. Needing twice as much tungsten as home mines yield, the United States buys the metal from Argentina, which ranks among the world's half-dozen leading producers. Before Pearl Harbor, Japan and the United States shared Argentine tungsten about equally.

GEOGRAPHIC SCHOOL BULLETIN

Published Weekly by

THE NATIONAL GEOGRAPHIC SOCIETY

(Founded in 1888 for the Increase and Diffusion of Geographic Knowledge)
General Headquarters, Washington, D. C.

Canada Aids Allies as Arsenal and Larder

MEAT-RATIONED citizens of the United States have looked longingly across the border to Canada, where meat purchasers have been bringing home the bacon ration-free.

Canada's brief ration holiday has emphasized that country's growing importance as a producer of food as well as of war materials. The Dominion of Canada has a greater area than that of the United States and only about one-twelfth as many people. The productive land yields a surplus of wheat, meat, and cheese for export abroad. In the winter season while the ice blocked shipping from most Canadian ports, the surplus had to stay at home, and Canadians could enjoy abundance unrationed.

Canada ranks fourth among the United Nations as a contributor of war goods to the joint military effort, and fourth also in air power. This prominence was reflected recently in the raising of Canada's diplomatic representation in the United States to the rank of embassy.

Foremost for Minerals More Precious than Gold

Farms, forests, mines, and waters give strength and sustenance to the Land of the Maple Leaf. Studded with valuable ores, Canada leads the world in production of platinum, ranks second for radium. It stands first also in tonnage of nickel and asbestos. Its mines yield large fractions of the world totals of copper, gold, lead, zinc, and silver. Coal, natural gas, and oil are other assets. Water power has been harnessed extensively, and much yet remains to be developed.

Canada is a bountiful bread-and-fruit basket. It figures the value of its field crops, farm animals, milk, poultry and eggs, and vegetables in millions of dollars. Fishing is a major industry.

This land of rich raw materials is also developing its own industries. Among manufactures are newsprint paper, lumber (illustration, next page), chemicals, textiles, and iron and steel goods.

Two Great Rivers and Many Great Lakes

From the coastal plains in the east, the rocky areas of Quebec Province, the barrens north of Lake Superior, the prairies and western foothills, to the towering Pacific highlands, Canada unrolls in a majestic ocean-to-ocean sweep. Lakes of all sizes and shapes dot the land. Waterways provide easy access to the heart of the country. Nearly half the Dominion's area is drained by two great rivers, the St. Lawrence and the Mackenzie. No difficult natural obstacles divide their basins.

The climate is arctic only in the far north. In the south it is comparable to that of border states of the United States.

Nature in the raw, still visible in many parts of Canada, attracts Dominion and United States sightseers to the scenic and recreational parks, to the wild animal preserves, to the Evangeline country made classic by Longfellow's poem.

Transcontinental railways, air service, and highways speed the affairs of the Dominion. For every 100 persons there are 12 telephones, 7 radio sets.

Canada's 11,400,000 people represent a mixture of several races, many nationalities, many creeds. Cities with more than 100,000 people are, in order of size, Montreal (890,000), Toronto (657,600), Vancouver (271,500), Winnipeg

UMI

Europe's potatoes, though needed for food, must serve the Nazi war machine.

Starch factories and dehydrating plants that have sprung up in northern Maine since Pearl Harbor prove that United States uses for the potato are increasing. Maine's Aroostook County has the loam and climate to win top rank among the nation's potato regions. It normally grows one-ninth of the nation's crop. Its farms average 270 bushels per acre or more than double the national average of 130 bushels.

New York, Minnesota, Idaho, and the northern States in general have large potato areas. Thirty States are working with the Department of Agriculture in an effort to develop varieties more resistant to drought, disease, and warm temperatures.

Bulletin No. 4, March 27, 1944.

James C. Sawders

POTATO HARVESTERS ARE BREAD WINNERS AMONG BOLIVIA'S INDIANS

Indians of South America's Andes discovered the potato before Spaniards discovered them. They were cultivating it in the Andean valleys too high and cold for grain. The potatoes were dug at the beginning of the southern winter—in May or June—and left out in the sun and the frost for about two weeks. This exposure shriveled but did not entirely dry them. To complete the drying process, they were trampled and left out to weather for several weeks more. Today's Indians, in broadbrimmed hats and striped blankets, repeat the ancient formula. The light, dry floury substance resulting from this treatment is called chuño. It remains unspoiled for years and is used instead of grain for bread. Some of the potatoes in this crop, harvested in Bolivia, will be used in a natural state; others will become chuño. In the 16th century, many Spaniards sold chuño to the Potosi miners, in the region which is now Bolivia, and made fortunes which enabled them to retire to Spain.

(218,000), Hamilton (164,700), Ottawa (the capital, with 150,800), Quebec (148,000), and Windsor (104,400).

Discovered at the end of the 15th century by John Cabot, Canada was settled first by the French. The Hudson's Bay Company, founded in 1670 and still in business under its ancient title, The Governor and Company of Adventurers of England Trading into Hudson's Bay, settled regions not occupied by the French. Throughout the 18th century the English and the French waged wars for North America. The scales were finally tipped by Wolfe's victory over Montcalm at Quebec in 1759, with cession of Canada to Britain in 1763.

Good neighborliness between Canada and the United States is exemplified in the unfortified border, in the building of the military Alaskan Highway, in the St. Lawrence projects.

NOTE: Railroads, important highways, and main routes of exploration are shown on the Society's Map of Canada. For additional information, see "Alaskan Highway an Engineering Epic," in the *National Geographic Magazine* for February, 1943; "Wartime in the Pacific Northwest," October, 1942; "Anticosti Island, Nugget of the North," January, 1942; "Canada's War Effort," November, 1941*; "New Brunswick Down by the Sea," May, 1941*; and "Salty Nova Scotia," May, 1940*. See also these GEOGRAPHIC SCHOOL BULLETINS: "Alaska-Canada Highway to Open a New 'Last Frontier'," April 27, 1942; and "Canada Makes Close Harmony on a Continental Scale," December 1, 1941.

Bulletin No. 5, March 27, 1944.

CANADA'S TREES TAKE THE WATER ROUTE TO A PAPER CAREER

Only the U. S. and the U.S.S.R. have greater expanses of coniferous forests—pine, spruce, hemlock, balsam—than has Canada. A third of the Dominion's vast area is forested. These rich resources supply in some years one-fourth of the nation's exports. Of newsprint, for example, this country has at times exported as much as all the other countries of the world together. Trees felled in winter set forth for sawmills, paper mills, and lumberyards with the spring thaw, roofing the rivers with a floating top layer of wood. A log jam may pile up so many tons of timber that dynamite is needed to move them. This jam was photographed on the Beauchêne River in Quebec Province. The dangerous process of breaking the titanic log jam with explosions (foreground) was so dramatic that it was filmed, and movie producers have since used it as a background for exciting sequences.